

138-45HV

CONFINED SPACE ENTRY

VA Hudson Valley Health Care System

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1. **PURPOSE:** To outline policy, responsibility and procedures to control the potential hazards when entering confined spaces.

2. **POLICY:** The VA Hudson Valley Health Care System (VAHVHCS) has established mechanisms to ensure the control of potential hazards when confined spaces are accessed/ entered. This policy is meant to apply to all employees, contractors, inspectors, and all other persons entering an identified confined space at the VAHVHCS. No person may enter a confined space without a **Pre Entry Confined Space Permit**.

3. **RESPONSIBILITIES:**
 - a. **Chief, Engineering Service** is responsible for:
 - 1) Ensuring the implementation of this policy
 - 2) Maintaining a Confined Space Listing developed with the assistance of the Safety Office and ensuring confined spaces are identified.
 - 3) Ensuring that all Engineering Service supervisors, employees and contractors are aware of this policy.
 - 4) Ensuring the availability and proper use of equipment as necessary for safe operations in confined spaces in compliance with this policy (e.g. entry/rescue tripods, harnesses, personal protective equipment)
 - 5) Ensuring the development of procedures for operations within confined spaces located on the VAHVHCS Campuses.

 - b. **Planning & Design Section Contracting Officer Technical Representatives (COTR)** is responsible for:
 - 1) Ensuring outside contractors requiring entry into confined spaces on the VAHVHCS campuses have documentation showing they have a Confined Space Permit (CSP) Program, as well as, employees (who will be entering the confined space) are trained in confined space entry
 - 2) Ensuring the **Pre-Entry Confined Space Permit** - Attachment C (first page minimum) is completed prior to all entries into a confined space (the **Pre-Entry Confined Space Permit** is obtained through the facility Fire Department and is meant to ensure a hazard assessment is conducted prior to any entry into confined spaces on the property of VAHVHCS)
 - 3) Alerting the outside contractor of any existing hazards in the confined space and ensuring the outside contractor is equipped with their own confined space entry equipment (e.g. PPE, monitoring equipment, harnesses, etc.)

4) Ensuring the **Pre Entry Confined Space Permit** is posted outside the entry to the confined space.

c. **Maintenance and Repair Section** Supervisor is responsible for

- 1) Identifying personnel who are affected by this standard and ensuring they receive the required confined space entry training as well as training on this specific SOP.
- 2) Providing information to the Safety Section on the type of work procedures and conditions within VAHVHCS confined spaces when requested.
- 3) Obtaining a **Pre-Entry Confined Space Permit** from the Fire Department and completing (at a minimum, page one of the permit) prior to entry into any confined space
- 4) Ensuring upon completion of work, the original **Pre-Entry Confined Space Entry Permit** is provided to the Fire Department for recordkeeping.
- 5) Providing and maintaining equipment that is needed for confined space entry, including but not limited to: protective barriers, ventilation devices, and rescue equipment.
- 6) Ensuring shop personnel maintain proficiency in confined space entry and that training is documented.
- 7) Ensuring shop personnel have the appropriate safety and personal protective equipment available for entry into the confined space (e.g. harnesses, hardhats, respirators, safety glasses, disposable coveralls, gloves, ventilation etc.)

d. **Chiefs, Fire Department** is responsible for:

- 1) Assisting supervisors with training relevant to this policy and as requested by supervisors.
- 2) Upon notification that a confined space entry is required, provide the **Pre-Entry Confined Space Permit** to the requesting representative and assist in the initial assessment by performing the pre-entry air monitoring (testing is conducted for oxygen, combustible gas, and toxic material concentrations (hydrogen sulfide and carbon monoxide))
- 3) Maintaining/calibrating confined space entry monitoring equipment for VA entry personnel (toxic gas meters, personal gas meters, communication radios)
- 4) Reviewing emergency rescue procedures with confined space entry teams prior to entry into confined space and performing emergency rescues in confined spaces.
- 5) Ensuring Fire Department personnel maintain proficiency in confined space rescues and that training is documented.
- 6) Ensuring no confined space permit is issued or entry allowed until all requirements of this policy are met.
- 7) Maintaining completed **Pre-Entry Confined Space Permits** for 3 years.

e. **Safety Office** is responsible for:

- 1) Coordination with Engineering Maintenance and Repair / Planning & Design to locate, identify and post VAHVHCS confined spaces.
- 2) Auditing and updating the written Confined Space Program for VAHVHCS.

- 3) Assisting the Fire Department and Engineering Maintenance and Repair / Planning & Design with pre-entry assessments and training as needed.
- 4) Assisting the Fire Department and Facility Supervisors in determining the need for personnel exposure monitoring as needed.

4. **PROCEDURES:**

a. **GENERAL PRE-ENTRY REQUIREMENTS FOR CONFINED SPACES ON CAMPUS**

- 1) Prior to entry into a confined space, a pre entry assessment will be completed to determine if the confined space is actually a permit confined space, based on the hazards at the time of entry. The pre entry assessment is part of the **Pre Entry Confined Space Permit** (page one), available through the Fire Department. The completed checklist must be kept on file with the Fire Dept. to ensure entry into confined spaces is tracked
- 2) All confined spaces will be identifiable by sight or other effective means to warn of the hazard and prevent unauthorized entry.
- 3) The Supervisor in charge of the work to be accomplished will initiate the request for a **Pre Entry Confined Space Permit** through the Fire Department.
- 4) All confined spaces must be tested by the Fire Department with a direct reading instrument to identify each hazard of the confined space. Acceptable entry requires oxygen content to be between 19.5% and 23.5%, combustible gas concentrations less than 10% of the lower flammable limit, and toxic material concentrations below the applicable permissible exposure limit or action level. This will be measured with a gas detector.
- 5) All Confined Space entries require a **Pre Entry Confined Space Permit** for entry (**Attachment C**), which is posted near the permit space to notify employees what hazards may be present, what PPE is required, and that only authorized entrants may enter the permit space. When required, pedestrian, vehicle, or other barriers necessary to protect entrants from external hazards will be used.
- 6) After approval is granted, the **Pre Entry Confined Space Permit** must remain at the worksite until all work has been accomplished. The **Pre Entry Confined Space Permit** will contain all monitoring results, the necessary personnel protective equipment required, and the entry equipment needed.
- 7) The supervisor will ensure the entrance personnel and attendant have training in confined space entry and that all entry equipment and air monitoring equipment is on site before employees enter the confined space. Prior to entry the air must be monitored for hazardous atmospheres. Air monitoring will continue until all work is completed. All utilities entering the area will be locked out and tagged or eliminated whenever possible (VAHVHCS policy 138-08HV).
- 8) There will be a minimum of two employees at the site; one to enter the site and accomplish the work and the other to serve as an attendant. An entry supervisor may also serve as an attendant or as an authorized entrant as long as that person is trained

and equipped as required by this section. Also, the duties of the entry supervisor may be passed from one individual to another during the course of an entry operation.

- 9) At the Castle Point and Montrose Campuses, the attendant will have two-way communication capability with VAHVHCS Fire Department rescue personnel and will monitor the progress of the entrant. The attendant **is not to enter** the confined space under any condition. The attendant will also assist the entrant on entering and exiting the area. The entrant is responsible for wearing all retrieval equipment and personnel protective equipment required by the permit. The employee entering the confined space must maintain visual or audio contact with the standby person (attendant).
- 10) Upon completion of work, copies of confined space entry permits will be returned to the Fire Department for filing.
- 11) Only battery operated (12 volts or less) or explosion proof electrical equipment will be used in confined spaces. Exceptions will be made on a case-by-case basis with approval of the Fire Department.
- 12) Employees working in confined spaces will be provided (by their supervisor) the use of equipment necessary for safe entry to include non entry rescue equipment such as a safety harness and lifeline and retrieval system when required.
- 13) Local exhaust ventilation will be provided to eliminate contaminants from welding and other operations within the confined space. Ventilation equipment will not block the entrance or hinder egress from the confined space. When sufficient ventilation cannot be attained without blocking access, persons in the confined space will be protected by air line respirators or self-contained breathing apparatus. If ventilation is required in the pipe tunnels and crawl spaces, proper procedures for ventilating asbestos contaminated areas must be followed. No rescue efforts into a PRCS will be attempted by anyone other than the Fire Dept.
- 14) Outside contractors requiring entry into confined spaces on the VAHVHCS campuses must inform the COTR's of their requirement to enter a confined space. The COTR must have documentation from the contractor proving the contractor has a Confined Space Permit (CSP) Program, as well as, employees trained in the company's CSP. The COTR will then inform the Fire Department that a **Pre Entry Confined Space Permit** will be required. The Fire Department will provide initial monitoring of the confined space and will provide emergency rescue if required. All efforts will be made to alert the outside contractor of any existing hazards in the confined space. The outside contractor must supply their own equipment (e.g. PPE, monitoring equipment, non entry rescue equipment, etc.).

b. Assigned Duties:

- 1) The duties of an **authorized entrant** are to ensure that:
 - (a) The **Pre Entry Confined Space Permit** is carefully reviewed and all guidelines are followed, and the area is monitored for atmospheric hazards before, during and after entry.
 - (b) All steam, water, electrical, gas, heat, and energy sources are locked-out/tagged-out.

- (c) All hazards are known, and symptoms of exposure are understood.
- (d) Communication system is followed to enable attendants to monitor entrants. All entrants must sign in and out of the posted Pre Entry Confined Space Permit in the presence of the entry supervisor.
- (e) Personal protective equipment is properly used. If the entrant is required to wear a respirator they must be in the VAHVHCS Respiratory Protection Program and must be trained and fit tested on the respirator used during the entry.
- (f) A personal gas monitor is obtained from the Fire Department
- (g) The area is well ventilated
- (h) The entrant alerts the attendant when:
 - Entrant recognizes warning sign (e.g. personal gas monitor alert) or system of exposure to dangerous situation.
 - Entrant detects a prohibited condition.
- (i) Exit is made from the confined space as quickly as possible when:
 - An order of evacuation is given by attendant or entry supervisor.
 - An entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
 - The entrant detects a prohibited condition.
 - An evacuation is activated.

2) The duties of an **authorized attendant** require that:

- (a) The hazards that may be faced during entry are known, including the mode, signs, symptoms and consequences of exposure.
- (b) Awareness of possible behavioral effects of hazard exposure in authorized entrants.
- (c) The attendant continuously maintains an accurate count of each entrant in the confined space, and can identify authorized entrants.
- (c) The attendant remains outside the confined space until relieved by another authorized attendant.
- (d) Communication with entrant is maintained to monitor entrant and the conditions in the confined space.
- (e) The attendant immediately orders the entrant to evacuate the confined space when:
 - A prohibited condition is detected inside or outside the confined space.
 - A behavioral effect of hazard exposure is noted.
 - The attendant cannot effectively and safely perform all duties.
- (f) The attendant summons rescue, Fire Department, Code 99 Team and other emergency services, as required; as soon as it is determined the entrant may need assistance to escape the permit space hazards.

- (g) The attendant warns non-authorized personnel that they must not enter the space; must exit the space if it is entered immediately. Notify entry supervisor if unauthorized persons have entered the space.
- (h) The attendant performs no other duties that might interfere with the primary duty of monitoring and protecting entrants. The attendant **may not enter** the confined space for rescue.

3) The duties of an **authorized entry supervisor** require:

- (a) That the hazards that may be faced during entry are known including mode, signs, symptoms and consequences of exposure.
- (b) Verification of accuracy and completeness of pre-entry monitoring and continuous monitoring if required specified in the entry permit.
- (c) Ensures all equipment is in place before entry and the required PPE is selected and available.
- (d) Signs the permit to authorize entry into the space.
- (e) Entrants must sign the confined space permit in the presence of the entry supervisor.
- (f) Permit must be posted at entrance of permit space for inspection.
- (g) The duties of the entry supervisor may be passed from one employee to another during the course of an entry operation as long as those employees have been trained and are aware of the specific requirements of the confined space entry.

c. Key Difference Between Permit Confined Space Entry vs. Non Permit Confined Space Entry

- 1) Permit confined space entry: OSHA notes four roles for a permit required confined space entry: entry supervisor; entrant; attendant; and rescue services. These roles apply to contractors and owners of permit required confined spaces. OSHA requires people fulfilling these roles to attend annual training.
- 2) Non-permit-required confined space entry: Does not have a requirement for a dedicated attendant. However, that does not mean no attendant. Should an eliminated hazard reappear or an unexpected hazard appear, the entrant may need help. Thus, someone should be in close proximity and maintain good communication with the entrant.

d. Definitions:

- 1) **Alternate Entry Procedure**: A procedure that may be used to enter a confined space if the only actual or potential hazard present in the space is atmospheric in nature, can be controlled by continuous forced air ventilation alone, will not become immediately dangerous to life and health (IDLH) if the mechanical ventilation should fail and documented data supports these findings.

- 2) **Attendant:** The person responsible for monitoring workers inside the permit required confined space from outside the space. The Attendant conducts continuous monitoring for changes in potentially hazardous air contaminants. He/she remains in constant contact with workers inside the space and may stop a job and order workers out of the space if he/she believes a hazardous condition exists. The Attendant must never enter or leave the confined space opening, unless he/she is relieved by another Attendant, or upon completion of the job after workers have evacuated the space and closed the confined space opening.
- 3) **Authorized Entrant:** The person authorized by the campus to enter a permit required confined space after receiving training. His/her task is to complete the job within the confined space and to be aware of all hazards associated with work within the space.
- 4) **Confined Space:**
 - Has limited means of entry and exit (for example manholes and vaults), See Attachments A and B
 - Is large enough and configured so that an employee can bodily enter and perform assigned work, and
 - Is not designed for continuous employee occupancy.
- 5) **Confined Space Entry Permit:** A written document that is provided by the employer to authorize and control entry into a permitted confined space. The VAHVHCS uses the Pre Entry Confined Space Permit as both a hazard assessment review and permit.
- 6) **Entry Supervisor:** The person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry.
- 7) **Hazardous Atmospheres:** An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness resulting from one or more of the following:
 - Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL).
 - Airborne combustible dust at a concentration that meets or exceeds its LFL. This may be approximated as a condition in which the dust obscures vision at a distance of 5 feet or less.
 - Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent.
 - Atmospheric concentration of any radioactive or airborne contaminant substance that could result in an exposure greater than the dose limit or Permissible Exposure Level (PEL).
 - Any other atmospheric condition that is immediately dangerous to life and health (IDLH).
- 8) **Immediately Dangerous to Life and Health (IDLH):** Any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a confined space.

- 9) **Lower Flammable Limit (LFL):** The minimum vapor concentration of a flammable liquid in air, below which flame propagation does not occur on contact with an ignition source.
- 10) **Non Permit Confined Space:** A space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.
- 11) **Oxygen Deficient Atmosphere:** A space with air that has an oxygen concentration less than 19.5% by volume.
- 12) **Oxygen Enriched Atmosphere:** A space with air that has an oxygen concentration greater than 23.5% by volume.
- 13) **Permit Required Confined Space:** A confined space that has one or more of the following characteristics:
- Contains or has the potential to contain a hazardous atmosphere,
 - Contains a material that has the potential for engulfing Entrants,
 - Has an internal configuration such that an Entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section, or
 - Contains any other recognized serious safety or health hazard.
 - OSHA notes four roles for a permit required confined space entry: entry supervisor; entrant; attendant; and rescue services. These roles apply to contractors and owners of permit required confined spaces. OSHA requires people fulfilling these roles to attend annual training.
- 14) **Testing:** The process by which hazards that may confront Entrants of a permitted confined space are identified and evaluated.
- 15) **Toxic Atmosphere:** A material in the air that will cause injury to an individual entering the space.
- 16) **Ventilation:** A process used to control the atmospheric hazards of confined spaces by replacing unsafe air with clean, breathable air

5. REFERENCES:

29 CFR 1910.146, Permit Required Confined Space

NIOSH 80-106 Criteria for Working in Confined Spaces
29 CFR 1926.21(b)(6)(ii) Safety Training and Education for Confined Spaces
29 CFR 1910.252(c) (9) (ii) Hot Work in Permit Required Confined Spaces
138-08HV, Lock Out Tag Out Program
ASTM Standard D 4276-84 Standard Practice for Confined Area entry 1997.
ANSI Z117.1, Safety Requirements for Confined Spaces 1995

6. RESCISSIONS:

SOP, **138-45HV**

Confined Space Entry, dated **April 2009**

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GERALD F. CULLITON Director

Attachment A - Areas at the VAHVHCS considered Confined Spaces

Attachment B – Areas at the VAHVHCS pre designated as Permit Required Confined Space

Attachment C - Pre Entry Confined Space Permit

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ATTACHMENT A

Areas at this facility meeting the "**confined space**" definition are:

Prior to entry into any confined space a **Pre Entry Confined Space Permit** must be completed – see Attachment C

- 1) Pipe tunnels
- 2) Boilers (for purposes of cleaning, inspection, repair, sandblasting and/or welding)
- 3) Telephone manholes & vaults
- 4) Steam transmission manholes
- 5) Water tower and valve vaults
- 6) Storm drainage manholes
- 7) Crawl space above transformer room
- 8) Underground Water Storage Tanks (CP)
- 9) Wastewater Treatment Plant digester
- 10) Sanitary sewer manholes
- 11) Pump room settling tank
- 12) Chlorine contact chamber
- 13) Grease trap bldg. #5 (Montrose), #16 (CP)
- 14) Oil tanks bldg. #20 (Montrose), #35 (CP)
- 15) Septic tank beach area
- 16) Electrical manholes
- 17) Crawl spaces under buildings
- 18) Wastewater Treatment Plant settling and treatment chambers
- 19) Drinking Water Plant (CP) settling chambers

ATTACHMENT B

Areas at this facility automatically meeting the "**permit required confined space**" definition are:

- 1) Wastewater Treatment Plant digester
- 2) Sanitary sewer manholes
- 3) Pump room settling tank
- 4) Chlorine contact chamber
- 5) Grease trap bldg. #5 (Montrose), #16 (CP)
- 6) Oil tanks bldg. #20 (Montrose), #35 (CP)
- 7) Septic tank beach area
- 8) Boilers (for purposes of welding and/or sandblasting only)

CONFINED SPACE PERMIT
VA Hudson Valley Health Care System

Location and Description of Confined Space

Confined Space is labeled as such: Yes No

Purpose of Entry

Permit is valid for one eight-hour shift only.

From:	Date:	Time:	
To:	Date:	Time:	

Work Performed By:

Shop: _____

Contractor: _____

Potential Hazards (Check all identified or suspected hazards)

- | | | |
|---|--|--|
| <input type="checkbox"/> Low Oxygen
<input type="checkbox"/> Flammable atmosphere
<input type="checkbox"/> Toxic atmosphere
<input type="checkbox"/> Atmosphere irritants
<input type="checkbox"/> Asbestos pipes/insulation
<input type="checkbox"/> Excessive heat
<input type="checkbox"/> Moisture
<input type="checkbox"/> Excessive noise
<input type="checkbox"/> Poor lighting/visibility
<input type="checkbox"/> High temp steam lines/leaks | <input type="checkbox"/> High pressure steam lines/leaks
<input type="checkbox"/> High temp condensate lines/leaks
<input type="checkbox"/> High surface and ambient temps
<input type="checkbox"/> Live electrical circuits/cables
<input type="checkbox"/> Electro-mechanical hazards
<input type="checkbox"/> Collapse of space
<input type="checkbox"/> Collapse of grating/support
<input type="checkbox"/> Falling off access ladder
<input type="checkbox"/> Falling through opening
<input type="checkbox"/> Overhead objects falling | <input type="checkbox"/> Unsecured ladder
<input type="checkbox"/> Slippery surfaces
<input type="checkbox"/> Liquid engulfment
<input type="checkbox"/> Standing sludge/debris
<input type="checkbox"/> Low overhead
<input type="checkbox"/> Entrapment
<input type="checkbox"/> Cramped space
<input type="checkbox"/> Standing water
<input type="checkbox"/> Hot liquids
<input type="checkbox"/> Other: _____

_____ |
|---|--|--|

Appropriate Personal Protective /Safety Equipment (As determined by entry Supervisor) R = required, V= verified:

	R	V		R	V		R	V
Safety glasses/goggles	<input type="checkbox"/>	<input type="checkbox"/>	Rubber gloves	<input type="checkbox"/>	<input type="checkbox"/>	SCBA	<input type="checkbox"/>	<input type="checkbox"/>
Face shield	<input type="checkbox"/>	<input type="checkbox"/>	Gloves, other:	<input type="checkbox"/>	<input type="checkbox"/>	Ventilation fan	<input type="checkbox"/>	<input type="checkbox"/>
Hard hat	<input type="checkbox"/>	<input type="checkbox"/>	Tyvek suit	<input type="checkbox"/>	<input type="checkbox"/>	Escape harness	<input type="checkbox"/>	<input type="checkbox"/>
Hearing protection	<input type="checkbox"/>	<input type="checkbox"/>	PVC/Splash suit	<input type="checkbox"/>	<input type="checkbox"/>	Tripod escape unit/hoist	<input type="checkbox"/>	<input type="checkbox"/>
Steel toe shoes	<input type="checkbox"/>	<input type="checkbox"/>	Air-purifying respirator	<input type="checkbox"/>	<input type="checkbox"/>	Other: _____	<input type="checkbox"/>	<input type="checkbox"/>
Rubber boots	<input type="checkbox"/>	<input type="checkbox"/>	Airline/5 minute/escape	<input type="checkbox"/>	<input type="checkbox"/>	Other: _____	<input type="checkbox"/>	<input type="checkbox"/>

On-Site Security and Communication (note: R = required, V = verified):

	R	V		R	V		R	V
Fire Dept notified	<input type="checkbox"/>	<input type="checkbox"/>	Intrinsically safe radio	<input type="checkbox"/>	<input type="checkbox"/>	Barricade erected	<input type="checkbox"/>	<input type="checkbox"/>
Attendant posted	<input type="checkbox"/>	<input type="checkbox"/>	Area roped off	<input type="checkbox"/>	<input type="checkbox"/>	Warning flags or cones	<input type="checkbox"/>	<input type="checkbox"/>
Telephone available	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs posted	<input type="checkbox"/>	<input type="checkbox"/>	Other: _____	<input type="checkbox"/>	<input type="checkbox"/>

Hazard Isolation, Elimination, and Control Procedures (note: R = required, V = verified)

	R	V		R	V
Pump out any standing water	<input type="checkbox"/>	<input type="checkbox"/>	Verify intrinsically safe tools/equipment	<input type="checkbox"/>	<input type="checkbox"/>
Lock Out/Tag Out electric/mechanical deactivation	<input type="checkbox"/>	<input type="checkbox"/>	Ventilate space with portable fan	<input type="checkbox"/>	<input type="checkbox"/>
Lock Out/Tag Out lines broken, capped, or blanked	<input type="checkbox"/>	<input type="checkbox"/>	Inert and purge flammable atmosphere	<input type="checkbox"/>	<input type="checkbox"/>
Verify adequate explosion-proof lighting	<input type="checkbox"/>	<input type="checkbox"/>	Visually inspect space for physical hazards	<input type="checkbox"/>	<input type="checkbox"/>

Hot Work:

(Requires prior approval of Fire Dept)

Is Required? Circle Yes/No

Is permit attached? Circle Yes/No